SR No. 034.

Study of Techniques and Applications of Satellite Imagery to Small Scale Mapping.

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14. Supplementary Notes		

15. Abstract

This report consists of a statement of objectives, a description of the test areas selected and an outline of the research program.

As we have stated in previous correspondence to your office, this Project has been seriously delayed due to the lack of sufficient imagery needed to obtain worthwhile results, and we have consequently not sent you the required progress reports. We now have sufficient imagery to commence work and submit this as our first Type II report, originally due six months after date of launch.

ERTS CARTOGRAPHIC RESEARCH PROGRAM.

1. Objectives.

The objectives are to investigate the application of ERTS imagery for mapping at 1/1,000,000 scale and to devise a viable system for mapping from this imagery involving the use of a minimum of control and sophisticated equipment. The aim is to devise a system which can be put into operation by any reasonably well equipped photogrammetric mapping office

Although the selected test areas are in the United Kingdom, it is foreseen that mapping from this type of imagery will be confined to the more remote areas of the world which are at present very poorly mapped in terms of both accuracy and terrain detail. It is therefore our intention to use primarily system corrected imagery, since the requisite minimum of six U.T.M. coordinated points needed for the production of scene corrected images would necessarily have to be taken from existing maps. The acceptance of these points for accuracy would imply that the area had already been satisfactorily mapped. The use of points from suspect maps would almost certainly result in a degrading of geometric accuracy and any other means of supplying control would be prohibitive in both time and cost.

It is, however, intended to compare both scene and systems corrected imagery with the ground truth information in order to obtain data on their relative geometric accuracies.

2. Proposed Test Areas.

It was proposed to carry out the research on imagery of selected areas of the U.K. because of the existence of very accurate and readily available ground truth data obtainable from Ordnance Survey maps published at a variety of scales from 1/1,250 to 1/625,000.

From the available imagery, an area comprising five images covering most of central and southern England has been selected for the investigation into geometric accuracies and the problems of joining images into a block. Two further areas have been selected for study of interpretation and map compilation: an area consisting of London and Southern England and another area in the Central Highlands of Scotland. These two areas were selected for image quality and their widely differing land-form and cultural patterns. It is intended to use imagery outside these areas for initial familiarization and evaluation of interpretation techniques in conjunction with the Ordnance Survey maps in order to not prejudice the 'unseen' interpretation of the imagery in the study areas.

3. Outline of Research Program.

3.1. Tests of geometric accuracy of system and scene corrected imagery.

3.2. Construction of a block of imagery and adjustment onto control.

3.3. Familiarization and evaluation of interpretation techniques.

3.4. Interpretation of imagery of study areas.

3.5. Investigation into the possibility of applying density slicing and image enhancement techniques.

3.6. Compilation of maps of study areas.

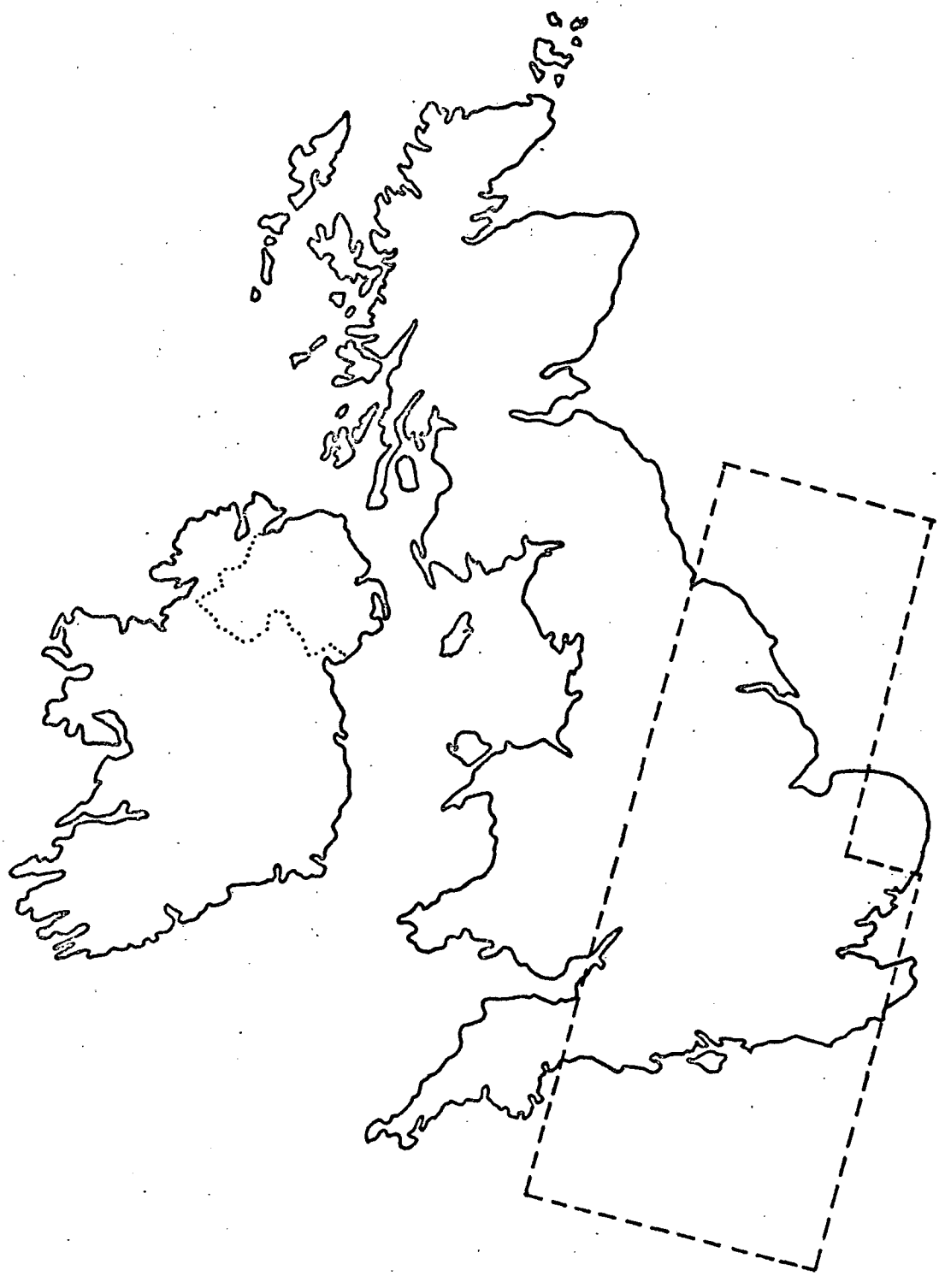
3.7. Comparison between map compilation and Ordnance Survey maps for classification and completeness of detail and accuracy of compilation.

3.8. Fair drawing and presentation.

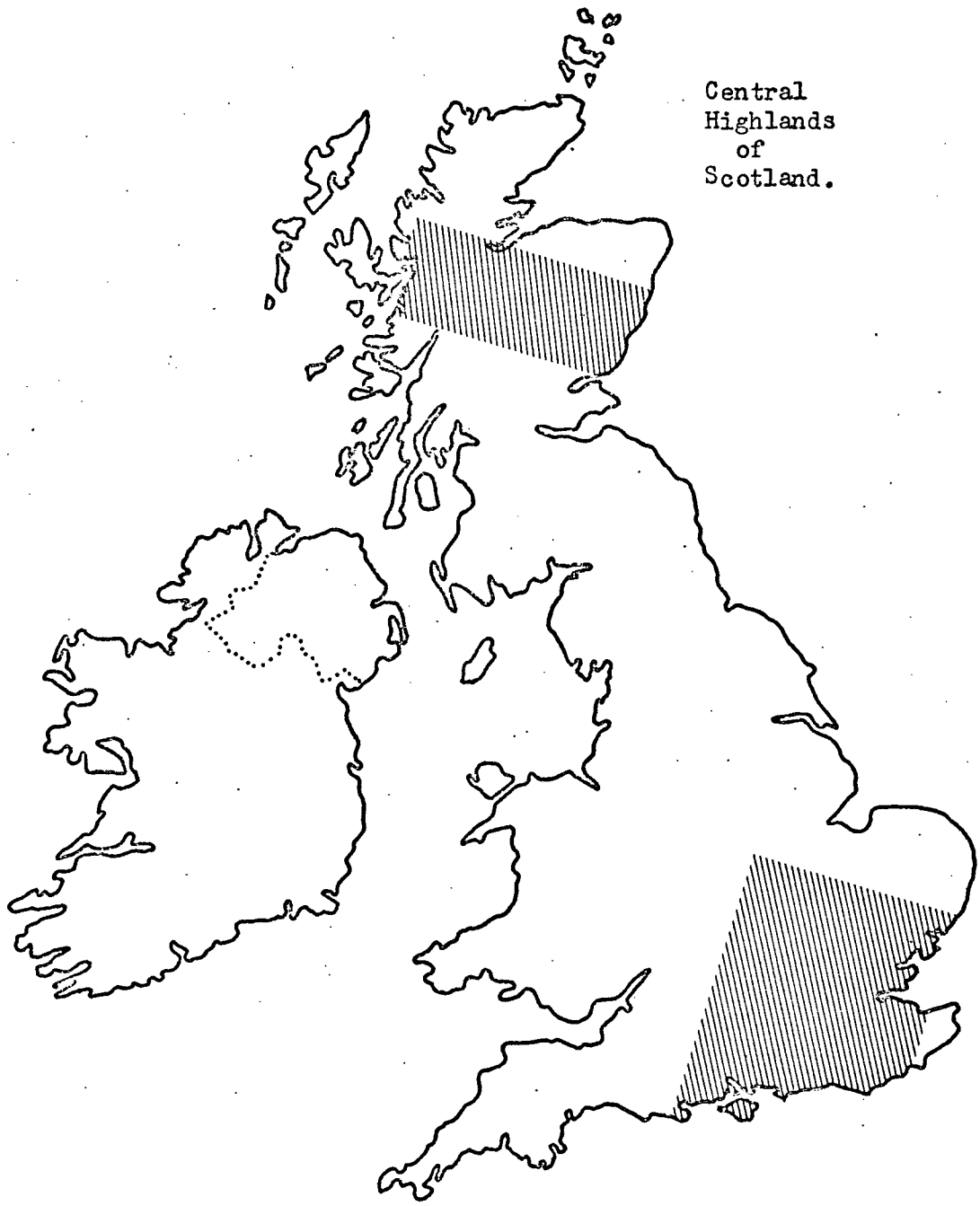
3.9. Final report.

P.G. Mott.

26th July, 1973.



TEST AREA FOR GEOMETRIC ACCURACY AND BLOCK ADJUSTMENT.



TEST AREAS FOR INTERPRETATION OF MAP COMPILATION.